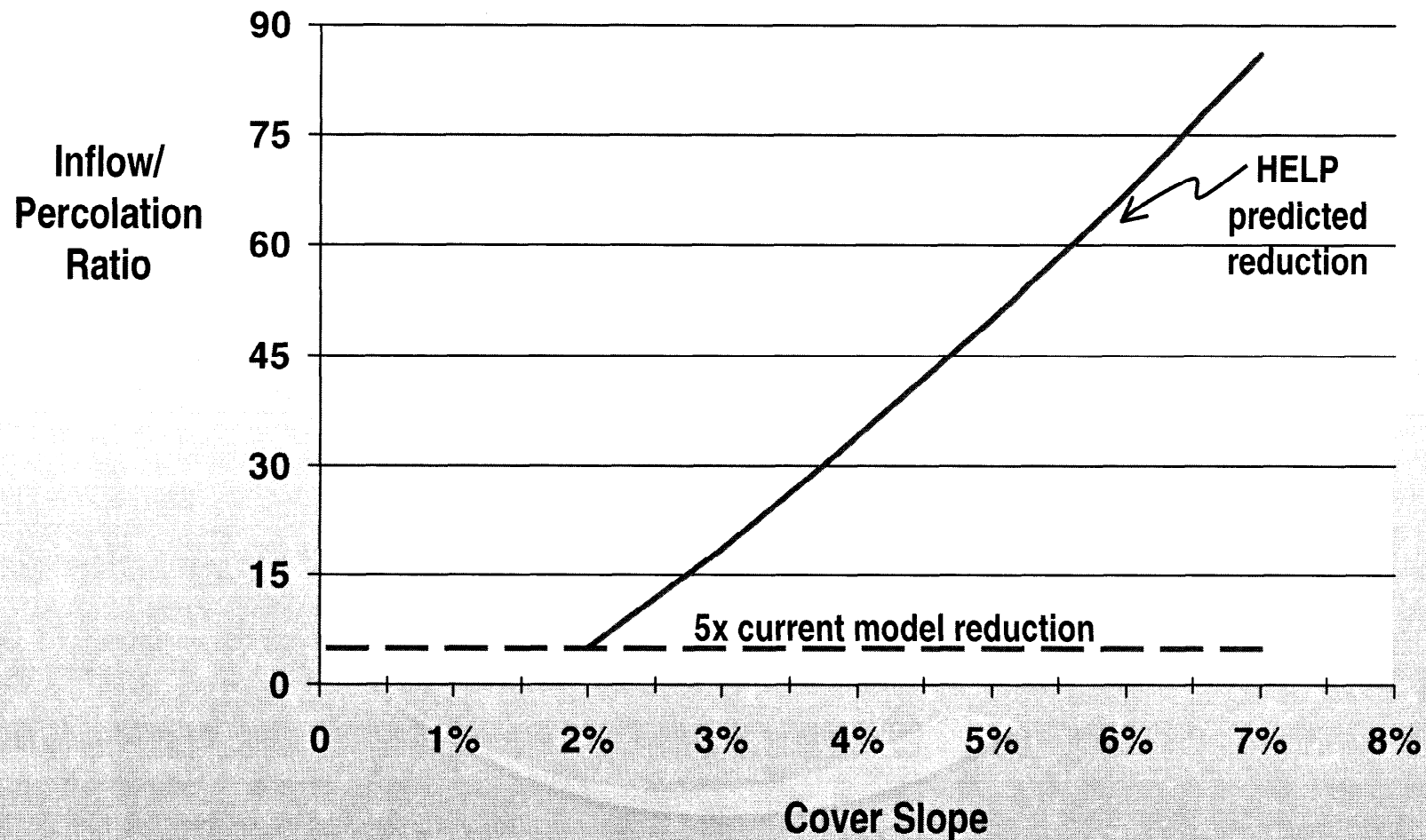


## ***HELP Predicted Inflow/Percolation Ratio for Clay Liner (no geomembrane)***



# ***Leakage Rate Comparison to Other Landfills***

***Average LDCRS flow rates at 18 landfill cells with composite top liners (from Bonaparte and Gross, 1990)***

| Leak Detection Layer Flow Rate | No. of Cells |
|--------------------------------|--------------|
| < 5 gpad                       | 5            |
| 5 to 20 gpad                   | 8            |
| > 20 to 50 gpad                | 3            |
| > 50 to 100 gpad               | 2            |
| > 100 gpad                     | 0            |

***ICDF cover estimated leakage = 0.1 mm/year = 107  
gallons/acre/year***

***EPA recommended action leakage rate = 100 gallons/acre/day  
(includes a factor of safety of 2)***

## **2-D Models**

***Main Issue: Flow of water across soil atmosphere boundry***

- ***2-D models typically estimate maximum or potential rate of evaporation based on climate conditions. These are appropriate for open water or fully saturated soil surfaces. Actual rates of evaporation from unsaturated soil surfaces are greatly reduced relative to the potential rate of evaporation.***
- ***A 2-D model will require the specification of a flux boundry condition at the ground surface to model flow of water across the soil atmosphere boundary. This requires a second model to be used.***
- ***What if the 2-D model provides a result of “0”?***

# ***ICDF Landfill Final Cover Hydrologic Model***

## ***Discussion Topics***

- ① *Review 30% Hydrologic Cover Study*
- ② *Review 60% Hydrologic Cover Study*
- ③ *IDEQ Comments*
- ④ ***Path Forward***